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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

JOHNSON, BRIAN P

ART UNIT PAPER NUMBER

2183

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,890

Applicant(s)

BURDASS, ANDREW

Examiner

Brian P. Johnson

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-15 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-15 and 24-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 9-15 and 24-30 have been examined.

Acknowledgment of papers filed: amendments and remarks filed on 14 September 2006.

Specification

2. The title is accepted. Objection is withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 9-12 and 24-27 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Birk (U.S. Patent No. 6,978,350).

Regarding claims 9 and 24, Birk discloses apparatus for processing data, said apparatus comprising: a cache memory (fig. 2 reference 12) operable to store program instructions to be executed (col 2 lines 29-30); an instruction pipeline including an instruction prefetch unit (col 2 lines 42-45) and an exception controller responsive to an

exception signal to trigger exception processing by forcing program execution starting from an exception handling program instruction stored at a predetermined memory location (col 2 lines 58-61);

Note that the instruction service routine comprises a plurality of instructions. So, it follows the memory hierarchy outlined in col 2 lines 36-49.

wherein upon receipt of said exception signal part way through execution of a current program instruction, said exception controller is operable to trigger a lookup of said exception handling program instruction within said cache memory (col 2 lines 35-49) and if said exception handling program instruction is not present within said cache memory to trigger a cache linefill operation to read said exception handling program instruction from a main memory to said cache memory (col 2 lines 47-50).

And upon completion of execution of said current program instruction, if said exception is still current, then said instruction prefetch unit fetches said exception handling program instruction from said cache memory (col 2 lines 36-49).

Note that the claimed functionality is executed regardless as to whether the exception is "still current".

5. Regarding claims 10 and 25, Birk discloses apparatus as in claim 9, wherein execution of said current instruction lasts for a plurality of clock cycles and lookup of said exception handling program instruction within said cache memory starts part way through said plurality of clock cycles (col 3 lines 16-22).

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6. Regarding claims 11 and 26, Birk discloses apparatus as in claim 9, wherein said exception handling program instruction redirects program execution to an exception handling routine (col 2 lines 58-61).

7. Regarding claims 12 and 27, Birk discloses apparatus as in claim 9, wherein said exception controller is an interrupt controller, said exception signal is an interrupt signal and said exception handling program instruction is an interrupt handling program instruction (col 2 lines 58-61).

Claim Rejections - 35 USC § 103

8. Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birk in view of Nguyen (U.S. Patent No. 5,481,685).

9. Regarding claims 13 and 28, Birk discloses apparatus as in claim 9.

Birk fails to disclose an exception that complete a data abort or a prefetch abort.

Nguyen discloses a data abort (col 14 line 62 to col 15 line 4) and a prefetch abort (col 27 line 2-5).

Examiner asserts that the functionality described in Nguyen is very common for processing systems. The motivation for this functionality is twofold: 1) the processing system is required to process the ISP instructions, so it must halt production on remaining instructions; 2) interrupts can change the flow of program execution, so the instructions are aborted so that unnecessary calculations are not made.

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It would have been obvious at the time of the invention for one of ordinary skill in the art to take the processing system of Birk and allow it to utilize the data and prefetch abort as disclosed in Nguyen.

10. Claims 14, 15, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birk in view of Glass (U.S. Patent No. 5,784,602).

Regarding claims 14, 15, 29 and 30, Birk discloses the limitations of claims on which these claims are dependent.

Birk fails to disclose a common core for processor components or, more generally, an integrated circuit.

Glass discloses a system on an integrated circuit (col 4 lines 21-25).

At the time of the invention, one skilled in the art would have been motivated to make the combination based on the reasoning disclosed in Glass that an integrated circuit "is highly advantageous for space, speed, power consumption and cost reasons" (col 4 lines 23-25).

It would have been obvious at the time of the invention for one of ordinary skill in the art to take the processing system of Birk and implement it on a single integrated core, as in Glass.

Response to Arguments

Applicant's arguments with respect to the present claims have been considered but are moot in view of the new ground(s) of rejection.

11. Regarding Glass, Applicant states:

"[T]he Examiner's conclusory statement that it would have been obvious to combine the references does not meet the test of the Court of Appeals for the Federal Circuit of demonstrating some 'reason' or 'motivation' for combining references."

Examiner agrees. Examiner directs Applicant's attention to the paragraph just prior to the "conclusory statement" of the previous Office Action:

At the time of the invention, one skilled in the art would have been motivated to make the combination based on the reasoning disclosed in Glass that an integrated circuit "is highly advantageous for space, speed, power consumption and cost reasons" (col 4 lines 23-25).

Conclusion


Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Johnson whose telephone number is (571) 272-2678. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


RICHARD L. ELLIS
PRIMARY EXAMINER